EM/DT (Q11L12) 35% (7/20)

✓ 1. With the increase of k, the decision boundary will be
- (A) simplified
- (B) more complex
- (C) I do not know
- (D) unchanged

✗ 2. Which of these algorithms can be used to fill the missing values
- (A) KNN for regression
- (B) KNN for classification
- (C) both
- (D) I do not know

✓ 3. Decision Tree Decision Boundaries
- (A) are a step-wise constant function
- (B) I do not know
- (C) continuous function
- (D) are axis-parallel rectangles

✓ 4. Root Node has
- (A) no incoming edges and zero or more outgoing edges
- (B) one incoming edge and two or more outgoing edges
- (C) one incoming edge and no outgoing edges
- (D) I do not know

✗ 5. Pruning the tree means
- (A) Simplify the tree
- (B) Split the tree's nodes
- (C) Merge the tree's nodes
- (D) I do not know

✗ 6. Gini index equals to

A 1 - sum (pi^2)

B 1 + sum (pi^2)

C sum(pi * log(pi))

D -sum(pi * log(pi))

E I do not know

✗ 7. Entropy starts with 0

A True

B False

C I do not know

✓ 8. Overall impurity measure can be obtained by

A a weighted average of individual rectangles

B majority voting

C I do not know

✗ 9. At each stage, we choose the split with

A the lowest Gini index

B the lowest Chi-square value

C the highest entropy

D I do not know

✓ 10. We can perform the Decision Trees in r using

A rpart()

B decisiontree()

C destree()

D reg.tree()

E I do not know

✓ 11. minsplit in R means

A the minimum number of observations that must exist in a node in order for a split to be attempted

B the minimum number of observations in any terminal node

C the minimum number of splits

D I do not know

✗ 12. **Bagging is a technique used to reduce**

- (A) the variance of our predictions
- (B) the bias of our predictions
- (C) both
- (D) I do not know

✓ 13. **Bootstrap aggregation allows sampling**

- (A) with replacement
- (B) without replacement
- (C) I do not know
- (D) both

✗ 14. **How can Ensemble methods be constructed?**

- (A) By manipulating the training set
- (B) By manipulating the input features
- (C) By manipulating the class labels
- (D) By manipulating the learning algorithm
- (E) All of them
- (F) None
- (G) I do not know

✗ 15. **Repeatedly sampling observations are taken**

- (A) from general population
- (B) original sample data set
- (C) I do not know
- (D) None

✗ 16. **Random Forest differs from bagging**

- (A) by a random sample of m predictors
- (B) by bootstrapped training samples
- (C) by adaptive sampling
- (D) I do not know

✗ **17. Boosting differs from bagging**

- (A) by a random sample of m predictors
- (B) by bootstrapped training samples
- (C) by adaptive sampling
- (D) I do not know

✗ **18. Averaging many highly correlated quantities**

- (A) lead to as large of a reduction in variance
- (B) does not lead to as large of a reduction in variance
- (C) lead to as large of a reduction in bias
- (D) I do not know

✗ **19. We can perform a Random forest in R using the function**

- (A) randomForest()
- (B) rf()
- (C) randomF()
- (D) boot()
- (E) I do not know

✗ **20. Random Forest works**

- (A) for classification
- (B) for regression
- (C) both
- (D) I do not know